

REVISION OF THE MEMBRACIDÆ OF SOUTH AMERICA AND ANTILLES

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This revision has been prepared to include in their modern genera all forms in the several subfamilies of the Membracidæ reported from the territory indicated, and so far as possible clear up the synonymy. As the colors depend upon the degree of maturity, and the size, shape and direction—sometimes even the presence or absence—of the pronotal protuberances vary in a number of species, they are not to be entirely depended upon in classification, while the venation of the tegmina and wings is a much safer guide, although their combined use will be found to be the best practice. However, eventually the most reliable characters will be taken from the sexual apparatus.

Single examples or a long series of many species have been examined, practically every published figure, as well as special drawings of a number of Walker's types made by Mr. W. E. China, of the British Museum, in which the important characters were delineated, were studied. Also most of the publications on the Membracidæ are on the shelves of my library.

A complete bibliography of the genera and species will be found in Dr. W. D. Funkhouser's monumental "Catalog of the Membracidæ," while his valued opinion on a number of puzzling species was freely given.

My thanks are due to Dr. F. X. Williams for the hundreds of examples placed in my hands of South American species; to Profs. Francisco Campos R., and Clodoveo Carrion, Messrs. G. H. H. Tate, and E. Feyer for much Ecuadorian material. Dr. L. O. Howard kindly forwarded copies of descriptions from works not in my library, and Miss Ruth Olsen made copies of a number of papers.

I. Subfamily ÆTHALIONINÆ

Genus STICTODEPSA

Stal, Hem. Fabr. ii, p. 57 (1869).

- pale, impected, apical half darker veins pale, cells fuscous margined *basale* Walk.
- 14 (1). Sides of prostethium with a distinct carina between front angles and posterior lobe.
- 15(20). Carina on sides of prostethium not foliaceously flattened; tegmina rugulose.
- 16(17). Pronotum and bases of tegmina remotely black-punctured; veins of apical half of tegmina black; head comparatively narrow, eyes not prominent beyond front angles of pronotum, basal margin straight *parviceps* Sign.
- 17(16). Pronotum and bases of tegmina densely punctured, punctures concolorous yellow; head about as wide as pronotum, eyes prominent beyond front angles of pronotum, basal margin sinuate.
- 18(19). Basal margin of head broadly sinuate at middle, sides of sinus rounded; pronotum yellow, no black stripes; tegmina and abdomen blackish *latreillei* Sign.
- 19(18). Basal margin of head distinctly sinuate at middle, an angle each side of sinus the tips rounded; pronotum black, finely punctate, margins yellow; abdomen black *nigrum* Sign.
- 20(15). Carina on sides of prostethium foliaceously flattened.
- 21(24). Basal margin of head straight or slightly sinuate at middle; pronotum convexo-declivous anteriorly.
- 22(23). Head about as wide as pronotum, basal margin straight, eyes prominent beyond front angles of pronotum; pronotum brown with dark spots on testaceous veins of tegmina, head and pronotum.
nervoso-punctatum Sign.
- 23(22). Head proportionately narrow, eyes not prominent beyond front angles of pronotum, basal margin sinuate at middle; pronotum distinctly punctate, testaceous, and it with scutellum immaculate; tegmina concolorous *quadratum* Fowl.
- 24(21). Basal margin of head deeply emarginate at middle, each side of sinus produced in a prominent angle or triangular horn; carina each side of prostethium elevated, frequently foliaceously flattened. (Subgenus *Schizia*, Lap.)
- 25(28). Scutellum lightly convex, not gibbous.
- 26(27). Carina each side of prostethium sinuate anteriorly; pronotum reddish-yellow with darker stripes *servillei* Lap.
- 27(26). Carina each side of prostethium roundly flattened out; pronotum greenish-yellow with yellow stripes; tegmina green, veins black and testaceous *gratum* Walk.
- 28(25). Scutellum distinctly gibbous anteriorly; pronotum testaceous.
- 29(30). Pronotum not densely punctured, punctures black; tegmina opaque, bases black punctured *punctatum* Walk.
- 30(29). Pronotum densely punctured, punctures concolorous; tegmina yellow hyaline, bases punctured *fissum* Walk.

LIST OF SPECIES

- reticulatum**, Linn. S. N. 12, p. 707; Fowl. B. C-A. Hom. ii, p. 171, pl. 10, f. 18.
minuta, Fabr. E. S., iv, p. 26.
citrona, Stoll, Cig., p. 59, pl. 14, f. 74.
parallelum, Sign. A. E. S. Fr. 2, ix, p. 677.
bivittatum, Walk. List, p. 649.
 var. *albo-nervosum*, Blanch. V. d'O. vi, pp. 221, pl. 31, f. 6.
 simile, Sign. l. e., p. 674.
 vicinum, Sign. l. e., p. 674.
 var. *vitticollis*, Stal, B. M. K., p. 297; Fowl. l. e., 171, pl. 10, f. 19.
 var. *multicolor*, Sign. l. e., p. 676, pl. 14, f. 7.
 Costa Rica; Pan.; Jamaica; Colomb.; Venez.; B. Guiana; D. Guiana; Braz.; Chile; Boliv.; Ecuad.
- apicale**, Walk. l. e., p. 648. Braz; Colomb.
 semi-annulatum, Sign. l. e., p. 673.
- variabilis**, Stal, l. e., p. 297. Colomb.
- picta**, Godg. l. e., p. lii, p. 105. Ecuad.
- basale**, Walk., l. e., p. 647. Colomb.
 subfascia, Walk. l. e., Suppl., p. 168.
- parviceps**, Sign., l. e., p. 671, pl. 14, f. 6. Chile; Venez.
- latreillei**, Sign. l. e., p. 672. Chile.
 var. *unicolor*, Sign., l. e., p. 672.
- nigrum**, Sign. l. e., p. 677. Braz.
- nervoso-punctatum**, Sign. l. e., p. 679, pl. 14, f. 10. Mex; Ecuad.
 var. *minor*, Fowl., l. e., p. 172, pl. 10, ff. 20-21.
- quadratum**, Fowl. l. e., p. 172, pl. 10, f. 22. Pan; Fla.
 Polydontoscelis cinctifrons, Ashm. Psyche, viii, p. 327.
- servillei**, Lap. A. E. S. Fr. 1, p. 224, pl. 6, f. 3. Braz.
 var. *hilare*, Walk., l. e., Suppl., p. 169.
- gratum**, Walk. l. e., Suppl. p. 169. Mex; Guat; Pan.
 dilatatum, Stal, Ent. Zeit., xxv, p. 73.
- punctatum**, Walk. l. e., p. 646. Colomb.
 curvatum, Sign., l. e., p. 678, pl. 14, f. 9.
 pulchrum, Walk., l. e., p. 647.
- fissum**, Walk. l. e., p. 648. Colomb; Braz.
 servillei, Sign., l. e., p. 678, pl. 14, f. 8.

Genus TROPIDASPIS

Stal, Hem. Fabr., ii, p. 55.

KEY TO SPECIES

- 1(2). Small; yellow to ferruginous, chest, abdomen and basal third of tegmina concolorous; basal sulcus of head broad, shallow, exterior angles not prominent; dorsum pronotum moderately convex, median carina slightly elevated; apical margins tegmina oblique.

truncaticornis Stoll

- 2(1). Larger; fuscous-brown, chest, head below vertex, two short lines on metopidium, tips of denticulated exterior angles of vertex, and basal fourth of tegmina, black; sulcus at base of vertex narrow, deep, exterior angles produced in prominent denticles; dorsum pronotum very tumid, median carina foliaceously elevated at middle; apical margins tegmina rounded*jubata* Godg.

LIST OF SPECIES

- truncaticornis*, Stoll, Cig. p. 115, pl. 28, f. 169. D. and B. Guiana; Pan.
carinatus, Fabr. Syst. Rh., p. 21.
jubata, Godg. l. c., p. 104. Tena, Ecuad.

Genus NICOMIA

Stal, O. V. A. F., p. 249.

KEY TO SPECIES

- 1(4). Tegmina hyaline with black bands; pronotum yellowish or testaceous.
 2(3). Punctures on pronotum concolorous, a ferruginous or blackish mark each side of metopidium, sometimes divided; scutellum concolorous; tegmina with basal and median bands, a small streak near tips, and body below, blackish*obliqua* Walk.
 3(2). Punctures on pronotum fuscous, median carina, impressed mark each side of metopidium, blackish; scutellum blackish at base; tegmina with bands front of middle, the chest, and disk of venter, blackish*interrupta* Stal
 4(1). Tegmina clear hyaline, veins black, immaculate; pronotum yellowish.
 5(6). Chest black, yellow spot each side anteriorly; abdomen black, a yellow basal band; scutellum with black dorsal stripe; pronotum minutely punctured, median carina, mark each side on metopidium, point each side posteriorly, black*cicadoides* Walk.
 6(5). Chest sordid yellow, abdomen concolorous; base of scutellum reddish testaceous; pronotum densely punctate, with numerous black stripes.*lemniscata* Stal

LIST OF SPECIES

- obliqua*, Walk. ♀, l. c., Suppl. p. 341 (March, 1858). Venez.; Braz.
subfasciata, Stal, ♂, l. c., p. 249 (May 12, 1858).
interrupta, Stal, l. c., p. 249. Braz.
cicadoides, Walk. Jour. Ent. i, p. 317. Braz.
lemniscata, Stal, l. c., p. 249. Braz.

Genus ENDOASTUS

Fowl., l. c., p. 168.

One uniformly brown or ferruginous species*caviceps* Fowl.

LIST OF SPECIES

- caviceps*, Fowl. l. c., p. 168, pl. 10, f. 16. Guat.; C. R.; B. Guiana.
productus, Osb. Zool., iii, p. 233.

Genus MINA

Walk., List Suppl., p. 165.

KEY TO SPECIES

- 1(2). Black, scutellar horn not hirsute; broad band and exterior border of tegmina black*aliena* Walk.
 2(1). Dark ochreous, pilose; scutellar horn long, slender, erect, very hirsute; brown band near tips tegmina*stylata* Buckt.

LIST OF SPECIES

aliena, Walk. l. c., p. 165. Ega, Braz.*stylata*, Buckt. Mon. Memb. p. 212, pl. 47, f. 5. Amazons, Braz.

Genus LOPHYRASPIUS

Stal, Hem. Fabr., ii, p. 55.

KEY TO SPECIES

- 1(2). Pronotum fuscous with an acute median carina, obsolete anteriorly; scutellum with an elevated rounded crest, front fuscous, white behind; tegmina destitute of fuscous bands.....*scutellata* Fabr.
 2(1). Pronotum destitute of median carina, with an obsolete median line; tegmina with fuscous band.
 3(4). Median carina of scutellum elevated in a nearly erect fuscous crest, pale posteriorly; abbreviated band behind middle, apical spot and apical margin of corium, and base of clavus, bronze-black.
vittata Oliv.
 4(3). Median carina of the scutellum acute posteriorly, not crested; pronotum black or ferruginous; base, transverse band at middle, and large subapical spot exteriorly, brown*parvimusca* Stoll

LIST OF SPECIES

vittata, Oliv. Enc. Meth. vii, p. 762. S. Am.*muscaria*, Fabr. S. Rh., p. 44.*parvimusca*, Stoll, l. c., p. 63, pl. 15, f. 82. D. and B. Guiana; Ven.*pygmaea*, Fabr., l. c., p. 44.*scutellata*, Fabr. l. c., p. 44. S. Am.

Genus GERRIDIUS

Fowl., B. C.-A. Hom., ii, p. 165.

One pitchy black species has been taken in South America, with a band on head, and hind margin of pronotum, testaceous, with an obsolete median line; scutellum black, hind margin white; tegmina black spotted.

scutellatus Fowl.

Baker described another form from Niagaragua (Can. Ent., xxxix, p. 114), which differs from the type form in the shorter tegmina and 3d apical cell, named *G. abbreviatus*.

LIST OF SPECIES

scutellatus, Fowl. l. c., p. 166, pl. 10, f. 11. Pan; B. Guiana; Ecuador.*fowleri*, Havil. Zool., vi, p. 261.

Genus *EUSTOLLIA*

Goding, T. A. E. Soc., lii, p. 105.

KEY TO SPECIES

- 1(2). Dorsum of scutellum straight, median carina lightly elevated; pronotal elevation slightly inclined forward, not broad, hind margin oblique, pronotum piceous; tegmina brown, opaque, with or without black bands and red spots *jubata* Stoll
- 2(1). Dorsum of scutellum sinuate, base gibbous; tegmina opaque, destitute of bands or spots, veins irrorate.
- 3(4). Pronotal elevation lightly inclined forward, base and tip seen from side subequally broad, front margin lightly sinuate, hind margin and summit truncate, yellow testaceous golden pubescence; apex scutellum flat; venation of tegmina indistinct toward base, apical two-thirds distinct *punctata* M. & B.
- 4(3). Pronotal elevation well inclined forward, base much broader than summit seen from side, superior and posterior margins continuously convex, front margin strongly sinuate; scutellum narrow, median carina compresso-elevated before apex; tegmina with bases, costal and claval margins, punctate, venation distinct, surface greenish yellow mottled with black and brown *cornuta* Havil.

LIST OF SPECIES

- jubata*, Stoll, l. c., p. 37, pl. 7, f. 34. D. Guiana.
- punctata*, M. & B., Bul. B. E. Soc. xx, p. 213, pl. 1, f. 18, 19, 20. Cuba.
- cornuta*, Havil. l. c., p. 261, pl. 5, f. 1. B. Guiana.

Genus *LAMPROPTERA*

Germar, Rev. Ent. Silb., iii, p. 261.

KEY TO SPECIES

- 1(4). Summit of scutellar horn rounded, nearly truncate; pronotum black; tegmina hyaline with black bands.
- 2(3). Pronotal horn slightly inclined forward, summit rounded; scutellar horn erect, summit distant; tegmina with 3 black bands. *capreolus* Germ.
- 3(2). Pronotal horn recurved, summit touching scutellar horn which is inclined forward; tegmina hyaline, base, short band on interior posterior angle, and claval suture, black *vacca* Germ.
- 4(1). Summits of both dorsal horns acute, recurved, distant; pronotum black or ferruginous; tegmina hyaline, with a central brown spot. *cristata* Stal

LIST OF SPECIES

- capriolus*, Germ. Mag. Ent. iv, p. 33, pl. 1, f. 4; Fairm. Rev. Memb. p. 528, pl. 3, f. 11, 12. Braz.
- vacca*, Germ. l. c., p. 34; Fairm. pl. 1, f. 10. Braz.
- cristata*, Stal, Hem. Fabr. ii, p. 56. B. Guiana.

Genus TOLANIA

Stal, Ent. Bid., p. 248.

KEY TO SPECIES

- 1(14). Apex of scutellum obtusely rounded.
 2 (7). Pronotum ferruginous to black.
 3 (6). Covered with gray pubescence.
 4 (5). Tegmina fusco-hyaline, costa and apical margins black; front margin of suprahumeral carinate*obscura* Germ.
 5 (4). Tegmina hyaline, base fusco-ferruginous, suprahumeral not carinate*semipellucida* Stal
 6 (3). Destitute of pubescence; tegmina dark yellow, fuscous costa and base punctate*scutata* Stal
 7 (2). Pronotum yellowish, or variegated.
 8 (9). Base of scutellum turgid; suprahumeral crestiform; tegmina yellow hyaline, base ferruginous, punctate; chest and femora in ♂ black, in ♀ yellow*cristata* Leth.
 9 (8). Scutellum flat.
 10(11). Abdomen blackish, pale laterally; pronotum with black lines anteriorly; tegmina fuscous, tips pale*felina* Germ.
 11(10). Abdomen yellow.
 12(13). Body hairy; pronotum black variegated, metopidium almost perpendicular; scutellum black, with a furrow and basal yellow stripe; tegmina tawny, with a broad median black band; abdomen with a broad black dorsal band*fasciata* Walk.
 13(12). Body not hairy; scutellum with sordid yellowish stripe; tegmina tawny, base fuscous and costa punctate, no black band.
fraterna Stal
- 14 (1). Apex of scutellum acute.
 15(16). Pronotum black, depressed; scutellum slender, a yellow and a white spot on base; tegmina gray, lurid toward tips.....*humilis* Walk.
 16(15). Pronotum yellowish, with black marks anteriorly.
 17(18). Suprahumeral erect; body below and legs bright yellow; tegmina yellow hyaline, costa black*armata* Stoll
 18(17). Suprahumeral divergent, slightly curved, black above; scutellum black, base testaceous, slender; tegmina lurid; abdomen black; legs with black streaks*opponens* Walk.

LIST OF SPECIES

- obscura*, Germ. Rev. Ent. Silb. iii, p. 258. Braz.
semipellucida, Stal, Ent. Bid. p. 249. Braz.
scutata, Stal, ♂, Hem. Rio J. ii, p. 36. Braz; B. Guiana.
cristata, Leth. A. E. S. Fr. (1890), p. 155. Venez.
femorialis, Stal, ♀, l. c., p. 37.
felina, Germ. l. c., p. 259. Braz.
fasciata, Walk. List, p. 1147. Braz.

fraterna, Stal, l. c., p. 37. Guat; Pan; Pearl Is; Venez; Braz.

obtusa, Fowl., l. c., p. 166, pl. 10, f. 14.

humilis, Walk. l. c., Suppl. p. 161. Braz.

armata, Stoll, l. c., p. 90, pl. 24, f. 130. D. Guiana.

opponens, Walk. l. c., Suppl. p. 159; Fowl. l. c., pl. 10, f. 12, 13; Buckt. l. c., pl. 60, f. 4. Mex; Guat; Pan; Braz.

fasciata, Walk., l. c., Suppl., p. 161.

Genus WILLIAMSIANA

Goding, T. A. E. Soc., lii, p. 103.

One ferruginous species, densely punctured on pronotum, scutellum, and tegmina; suprahumeral short, stout, conical; base of head horizontal; tegmina green, opaque, venation ferruginous red; wings reddish hyaline, veins red, long as tegmina and broader at basal third*ferruginosa* Godg.

ferruginosa, Godg. l. c., p. 103, fig. in text. Baños, Ecuador.

Schmidt opines (in lit.) that it belongs to Breddin's genus *Zyzzogedon*, of the Tettigoniellidæ.

Genus ABELUS

Stal, Bid. Memb. K., p. 293.

KEY TO SPECIES

- 1(2). Black, sparingly golden pubescent; pronotum densely and distinctly destitute of stripes; apical half of tegmina fuscous, base black, a decolorated spot behind costa and clavus*luctuosus* Stal
- 2(1). Ferruginous; pronotum with 2 broad fuscous stripes; tegmina hyaline, a fuscous discal spot each side anteriorly and one behind apex of clavus, base ferruginous, veins testaceous.....*inermis* Leth.

LIST OF SPECIES

luctuosus, Stal, Bid. Memb. K., p. 294. Bogota, Colomb.

inermis, Leth. A. S. E. Fr. (1890), p. 155. Tovar, Venez.